



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/726,663	11/30/2000	Chrong-Jung Lin	TS98-338B	1676

7590 04/23/2002
George O. Saile
20 McIntosh Drive
Poughkeepsie, NY 12603

EXAMINER

DICKEY, THOMAS L

ART UNIT	PAPER NUMBER
----------	--------------

2826

DATE MAILED: 04/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/726,663

Applicant(s)

LIN ET AL.

Examiner

Thomas L Dickey

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 2826

DETAILED ACTION

1. The preliminary amendment filed on 11-30-00 has been entered.

Oath/Declaration

2. The oath/declaration filed on 11-30-00 is acceptable.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the surfaces of different shapes of claims 1-6, and the rectangular and triangular surface shapes of claim 4, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Applicants should note that all of the drawings they have submitted are cross-sectional. It is considered impossible to illustrate the shape of a surface by showing the cross-section of the solid object which that surface bounds. Applicants should also note that, as discussed in the section titled "Claim Rejections – 35 USC § 112," it is believed that when applicants use the claim language "gate with multiply connected surfaces of different shapes," they mean "gate with two or more sections, each such section having a cross-sectional profile shape distinct from the cross-sectional profile shape of at least one other such section." Such an arrangement is

Art Unit: 2826

illustrated, except that the combination of rectangular and triangular sections believed to be claimed in claim 4 is not illustrated.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Priority

4. Acknowledgement is made of applicant's claim for domestic priority under 35 U.S.C. 120, through application 09/347,547, now U.S. Patent No. 6,225,162, filed 1/19/99.

Information Disclosure Statement

5. The Information Disclosure Statement filed on 11-30-00 has been considered.

Specification

6. Applicant's first line must be amended to insert

"now U.S. Patent No. 6,225,162,"

between – serial number 09/347,547, –

and – filing date –.

Correction is required.

Art Unit: 2826

Claim Objections

Claims 1-6 are objected to because of the following informalities: In claim 1 line 6, the step of "providing" is recited. A step limitation is improper in a device claim, the limitation must recite the limitation as the product of said step, or simply be re-worded so as to not refer to the step. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. With regard to claims 1-6, while applicant may be his or her own lexicographer, a term in a claim may not be given a meaning repugnant to the usual meaning of that term. See *In re Hill*, 161 F.2d 367, 73 USPQ 482 (CCPA 1947). The term "surfaces" in claims 1-6 is used by the claim to mean "sections of a solid," while the accepted meaning is "two-dimensional outer limit of a solid." The term "shapes" in claims 1-6 is used by the claim to mean "cross-section," while the accepted meaning is "visible outline."

B. With specific regard to the use of the word "surfaces" in claim 3 line 2, while applicant may be his or her own lexicographer, a term in a claim may not be given a

Art Unit: 2826

meaning repugnant to the usual meaning of that term. See *In re Hill*, 161 F.2d 367, 73 USPQ 482 (CCPA 1947). The term "surfaces" in claim 3, line 2 is used by the claim to mean "step," while the accepted meaning is "two-dimensional outer limit of a solid." See specification, page 14, line 13, where applicants' only reference to "depth" is to modify "step." Since the term "surfaces" in claim 3 line 2 refers to something other than the thing referenced by the same word in claim 1, there is insufficient antecedent basis for "said ... surfaces" in claim 3.

C. With regard to claim 4, applicants have attempted to claim a group of shapes without using proper Markush group ("said different shapes are selected from a group consisting of rectangles and triangles") language.

Correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Art Unit: 2826

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by ARAI (6,329,688).

Arai discloses a stacked gate flash memory cell with a semiconductor substrate 1, a floating Poly-Si gate 4 with multiply connected surfaces of different shapes (note the flat surface in the center of the floating gate and the two curved surfaces, stepped above the flat surface, on either side of the flat surface), an inter-poly dielectric layer 5 over said floating Poly-Si gate 4, and a Poly-Si control gate 6a over said inter-poly dielectric layer 5. Note figure 2 of Arai.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

A. Claims 2,3,5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over ARAI (6,329,688).

Arai discloses a semiconductor memory with all the limitations of claims 2,3,5, and 6 except:

For claim 2, a floating gate thickness of 1900-2100 angstroms

For claim 3, a step depth of 900-1100 angstroms

Art Unit: 2826

For claim 5, an interpoly dielectric layer thickness of 150-250 angstroms

For claim 6, a control gate thickness of 1500-2000 angstroms.

Note figure 2 of Arai. With regard to claim 5, note particularly col. 8 lines 60-62, disclosing an O-N-O interpoly dielectric layer. Although Arai's device does not teach the exact thickness of the floating gate, step depth, interpoly dielectric layer, and control gate, as that claimed by Applicant, the thickness differences are considered obvious design choices and are not patentable unless unobvious or unexpected results are obtained from these changes. It appears that these changes produce no functional differences and therefore would have been obvious. Note *In re Leshin*, 125 USPQ 416.

Allowable Subject Matter

10. Claim 4 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112 set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 703-308-0980. The examiner can normally be reached on Monday through Thursday 8 AM to 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone numbers

Art Unit: 2826

for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3431.

tld
04/2002


Minh Loan Tran
Primary Examiner